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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/692,240 | 10/22/2003 | Dustin A. Cochran | STL 3318 | 8375 |

50268 7590 03/23/2007

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| EXAMINER | |
|---|---|
| ZHENG, LOIS L | |
| **ART UNIT** | **PAPER NUMBER** |
| 1742 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 03/23/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/692,240 | COCHRAN, DUSTIN A. | |
| | Examiner | Art Unit | |
| | Lois Zheng | 1742 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-17 and 19-23* is/are pending in the application.

4a) Of the above claim(s) *11-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,16,17 and 19-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 December 2006 has been entered.

### *Status of Claims*

2. Claims 1, 16, 19 and 23 are amended in view of applicant's amendment filed 21 December 2006. Claim 18 is canceled in view of applicant's amendment. Claims 11-15 remain withdrawn from consideration as they are directed to non-elected invention. Therefore, claims 1-10, 16-17 and 19-23 are currently under examination.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-10,16-17, 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacLeod et al. US 6,267,869 B1(MacLeod) in view of FR 2,436,643 A1(FR'643).

MacLeod teaches an electrochemical machining device for forming patterns/grooves on the internal surface of a cylindrical workpiece(abstract, Fig. 2). MacLeod teaches that a bearing with a shaft with groove patterns is inserted into the workpiece. During electrochemical machining, grooves are formed on the internal surfaces of the cylindrical workpiece(col. 3 line 28 – col. 5 line 21).

However, MacLeod does not explicitly teach the claimed pressurized air chamber and the claimed expandable diaphragm.

FR'643 teaches a locking device for cylindrical bodies(title). The locking device comprises an elastic hollow O-ring(i.e. a pressurized fluid chamber)(page 2 last paragraph, abstract) formed by an elastic material(i.e. an expandable diaphragm) configured to position the workpiece radially in response to the pressurized fluid being released into the elastic hollow O-ring(Fig. 2 numeral 5).

Regarding claim 1, one of ordinary skill in the art would have found it obvious to have incorporated the locking device of FR'643 into the electrochemical machining device of MacLeod in order to securely position the cylindrical workpiece as taught by FR'643. Therefore, the elastic hollow O-ring in the locking device of MacLeod in view of FR'643 reads on the claimed pressurized air chamber with an expandable diaphragm and the bearing with a shaft and the locking device as taught by MacLeod in view of FR'643 reads on the claimed system.

In addition, even though MacLeod in view of FR'643 do not explicitly teach that the pressurized fluid is air, one of ordinary skill in the art would have found it obvious that the pressurized fluid encompass both liquid and gas such as air.

Furthermore, the examiner asserts that the apparatus of MacLeod in view of FR'643 is capable of positioning the workpiece by the system to permit electrochemical machining of the electrode assembly as recited in amended claim 1.

With respect to the amended feature of "a base having a cavity to hold the workpiece, the cavity having an electrode contact therein", the hole between the two annular collars(see paragraph 3 on page 3 and See Fig. 2 of FR'643) in the locking device of MacLeod in view of FR'643 reads on the claimed base having a cavity to hold the workpiece. In addition, since MacLeod in view of FR'643 teach an electrochemical machining device and the workpiece acts as an anode during an electrochemical machining process, one of ordinary skill in the art would have found it obvious to have incorporated the claimed electrode contact in the cavity of the base of MacLeod in view of FR'643 in order to provide electrical current to the workpiece for electrochemical machining to take place.

Regarding claim 16, the elastic hollow O-ring as taught by MacLeod in view of FR'643(page 3 first paragraph) meets the structure limitation of the claimed pressurized air chamber for deflecting a thin wall of an expandable diaphragm. The remaining claim limitations are rejected for the same reasons as stated in the rejection of claim 1 above.

Regarding claim 2, the workpiece lock device of MacLeod in view of FR'643 teach a workpiece piece surface for receiving the workpiece(i.e. the top surface and the seal around the top surface of the piston P as shown in Fig. 2 of FR'643).

Regarding claims 3 and 19, even though MacLeod in view of FR'643 do not explicitly teach the claimed clamping ring, one of ordinary skill in the art would have

found it obvious to have incorporated the claimed clamping ring in order to restrain the workpiece from any vertical movements.

Regarding claims 4 and 20, since the apparatus of MacLeod in view of FR'643 is an electrochemical machining device, the electrical coupling of the workpiece with an anode contact is inherently present in order for the device to be operational.

Regarding claims 5 and 17, FR'643 further teaches allowing pressurized air to enter the expandable diaphragm to inflate the expandable diaphragm(abstract, page 3 second and third full paragraphs), which inherently teach the presence of pressurized air port as claimed.

Regarding claim 6, the thin wall of the expandable diaphragm as taught by MacLeod in view of FR'643 reads on the claimed thin wall configured to deflect in response to the pressurized air, which in turn causes the workpiece to position radially relative to the electrode assembly.

Regarding claims 7 and 10, the claimed length of deflection and the claimed positioning accuracy are considered process limitations in apparatus claims. As stated in MPEP 2114 [R-1], it is well settled that the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus as long as the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Since the apparatus of MacLeod in view of FR'643 teaches all the structural limitations of the instant invention, the claimed length of deflection and the claimed positioning accuracy do not lend patentability to the instant apparatus claims absent of factual evidence

indicating that the claimed length of deflection and positioning accuracy structurally affect the instantly claimed apparatus.

Regarding claim 8, even though MacLeod in view of FR'643 do not explicitly teach the thickness of the expandable diaphragm wall, the instant apparatus is not patentably distinct from the apparatus of MacLeod in view of FR'643. It is well settled that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). See MPEP 2144.04. In this case, the only difference between the apparatus of MacLeod in view of FR'643 and the apparatus of the instant invention is the dimension of the expandable diaphragm wall, and the expandable diaphragms of MacLeod in view of FR'643 and the instant invention functions in the same manner. Therefore, the instant apparatus is not patentably distinct from the apparatus of MacLeod in view of FR'643.

Regarding claim 9, even though MacLeod in view of FR'643 do not explicitly teach that the thickness of the thin wall does not vary by more than approximately 5-10 microns in any one place, one of ordinary skill in the art would have found it obvious to have incorporated an expandable diaphragm with uniform thickness as claimed in the electrochemical machining apparatus of MacLeod in view of FR'643 in order to assert consistent force to the accurately position the workpiece. In addition, MacLeod in view

of FR'643 does not teach that the wall thickness of the expandable diaphragm is not uniform. Therefore, the examiner assumes that the wall thickness of the expandable diaphragm in the apparatus of MacLeod in view of FR'643 is uniform and doe not vary by more than approximately 5-10 microns in any one place as claimed.

Regarding claim 21, the grooves of on the shaft of the bearing as taught by as taught by MacLeod in view of FR'643 reads on the claimed electrode passage since they create passages for electrolyte to flow to and from the workpiece for electrochemical machining to form patterns on the workpiece.

Regarding claim 22, the elastic material of the elastic hollow O-ring as taught by MacLeod in view of FR'643, which reads on the claimed expandable diaphragm, when pressurized forms a hydraulic seal between the elastic hollow ring and the workpiece about an entire outer circumference of the workpiece as claimed.

Regarding claim 23, the examiner takes the position that the clamping ring of MacLeod in view of FR'643 is capable of being lowered on top of the workpiece as claimed. In addition, lowering of the clamping ring on top of the workpiece is directed to how the claimed electrochemical machining system is being operated(i.e. process limitation), therefore, does not lend patentability to the instant apparatus claims absence of factual evidence that lowering of the clamping rings structurally affects the instant invention. See MPEP 2114[R-1].

***Response to Arguments***

5. Applicant's arguments filed 21 December 2006 have been fully considered but they are not persuasive.

Regarding applicant's argument that claims 1 and 16 do not teach the newly amended claim feature of "a base having a cavity to hold the workpiece, the cavity having an electrode contact therein", the examiner has addressed these limitations in the rejection of claims 1 and 16 in paragraph 4 above.

Regarding the inconsistency that applicant has pointed out in the examiner's statement in rejecting claim 22, the examiner has amended the rejection ground for more clarification. Generally, it is the examiner's position that the elastic hollow O-ring as taught by MacLeod in view of FR'643 reads on the claimed pressurized air chamber with expandable diaphragm.

Regarding applicant's argument that claims 1 and 16 are system claims directed to a plurality of articles grouped together, the examiner does not find applicant's argument persuasive since the instant claims are directed to a positioning apparatus used for electrochemical machining. The instant claims also recite structure limitations for the instant positioning apparatus. The workpiece is simply an object that the claimed apparatus operates on and not part of the claimed apparatus. Therefore, the examiner maintains her position that the claimed positioning system is a "machinery which works upon an article or material in its intended use". Therefore, MPEP 2115 applies.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ

ROY KING
SUPERVISORY PATENT EXAMINER